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Appendix A

Abstracts of Case Studies and IPQMS Case Histories

ABSTRACTS OF BUSINESS CASE STUDIES*

Title: Note on Design-Manufacturing Integration
Author: Balaguer, N.S., Addonizio, M.
Publication Date: 06/14/1991
Product Type: Note
Publisher: Harvard Business School
Product Number: 9-191-202

Product Description:

Design-Manufacturing Integration (DMI) is becoming one of the most important trends in industry. As pressure mounts to bring higher quality, lower cost products to market as quickly as possible, the ability to couple design and manufacturing activities tightly to achieve time, quality, and cost saving benefits become critical. Organizational and technological factors that enable DMI-rotation among design and manufacturing engineers, cross-functional teams, use of a neutral transfer file, and adoption of an integrated CAD/CAM system, for example, can reduce manufacturing costs by as much as 75%, *engineering* changes by 65–70%, development time by 30–70%, and time to market by 20–90%. This note provides an overview of the concept of DMI and the organizational and technological barriers. In addition, it introduces a number of organizational and technological facilitators of DMI.

Subject: Cross Functional Management; Information Systems; Manufacturing Strategy; Product Design; Product Development; Teams; Technology

Academic Discipline: Computers and Information Systems

Length: 16 pages

Note: This case is out of print and no longer available for purchase.

Title: Euclid Engineering
Author: Kaplan, R.S.
Publication Date: 11/24/1992

* Courtesy of Harvard Business School Publishing.

Publication Revision Date: 06/18/1993
Publisher: Harvard Business School
Product Number: 9-193-031

Product Description:

Privately held engineering design and manufacturing company supplies the Big-3 U.S. auto manufacturers. To manage costs and help to keep prices down, the company develops activity-based cost (ABC) systems. Initially, the ABC system assigns manufacturing costs more accurately to products. Over time, the company uses an expanded ABC system to estimate the manufacturing cost consequences of product engineering decisions. In a recent application, the ABC system is used to provide the cost of activities performed during the design process itself.

Setting: Midwest, automotive supplier, 1991

Subject: Activity-Based Costing; Automotive; Cost Analysis; Cost System; Engineering; Management Accounting; Product Design

Academic Discipline: Accounting and Control

Length: 19 pages

Note: To order a copy of the case, please contact Harvard Business School Publishing at 1-800-988-0886 or at www.hbsp.harvard.edu

Title: Newell Co.: Acquisition Strategy

Author: Collis, D.J., Johnson, E.

Publication Date: 02/04/1994

Publication Revision Date: 03/30/1995

Product Type: Case (Field)

Publisher: Harvard Business School

Product Number: 9-794-066

Product Description:

Newell is a \$1.5 billion manufacturer and distributor of low-tech home and hardware products, geared to serve volume purchasers. In 1992, Newell is considering two approaches to expand its current product line with the acquisitions of Sanford Corp., a \$140 million manufacturer and marketer of writing instruments and office supplies, and Levolor, a \$180 million manufacturer of window blinds. The case focuses on Newell's enduring corporate strategy as a guide for selecting appropriate acquisitions to grow the company.

Setting: Wisconsin, consumer products, large, \$1.25 billion sales, 116,800 employees, 1991—1992.

Subject: Acquisitions; Consumer Products; Corporate Strategy; Distribution Channels; Diversification; Growth Strategy; Strategic Planning

Academic Discipline: Industry and Competitive Strategy

Length: 24 pages

Note: To order a copy of the case, please contact Harvard Business School Publishing at 1-800-988-0886 or at www.hbsp.harvard.edu

ABSTRACTS OF ENGINEERING CASE STUDIES*

ECL 219

Difficulties with Modular Housing, G. Kardos, 1975.

This case deals with the problems of introducing an innovative form of residential housing. The problems are both technical and managerial. The housing system discussed was conceived and developed as a complete system which provides attractive housing yet offers cost advantages in production, transportation, and erection. But technical competence is not enough— the principal problem becomes one of satisfying the various regulatory bodies that the innovative methods of construction are as good as the more traditional methods. (Parts A, B, C) Total 30 pages. Instructor's Note: 2 pages.

ECL 220

The Trouble Light Recall, Robert McLaghlin, 1975.

This is the story of the Consumer Product Safety Commission's recall of a trouble light made by A.K. Electric Company. Reports on the investigation of a death involving a trouble light, and the subsequent labeling of the light by the commission as an "imminent hazard" give the reader an insight into the administrative and engineering processes of the CPSC. Total 29 pages.

ECL 256

Double Alkali Flue Gas Desulfurization: The CIPS Experience, R. Myhre, 1983.

* Courtesy of the American Society for Engineering Education.

A study of the efforts of an electric utility company to adopt a new approach to controlling emissions from a coal-burning power plant. The technical issues are examined as well as the associated legal and regulatory controversies. (Parts A, B, C, D, E, F) Total 44 pages. Instructor's Note: 6 pages

ABSTRACTS OF IPQMS CASE HISTORIES

Title: Kabini Papers, Ltd.: A Development Project Utilizing Agricultural Raw Materials
Author: Arvinder Brara
Published in: *Food and Agricultural Waste Development Projects*, Louis Goodman, John Hawkins, and Tet-suo Miyabara, eds. (New York: Pergamon Press, 1982)

This case history describes the planning, design, and implementation of a mini-paper plant in a rural area of India to meet a paper shortage and to create jobs, involving both professional and technical personnel. Using locally available but unutilized agricultural resources, such as rice straw or elephant grass, the plan was designed to produce ten metric tons of "kraft paper" (industrial paper) per day. Highlights of the case history include the feasibility studies, the project's organizational and funding complexities, the design problems, the technical solutions, and the overall impact on rural development efforts. The case clearly demonstrates the significance of the ways in which meaningful employment can affect people's lives. In addition, it resulted in an innovative treatment of the effluent to not only avoid pollution of the environment, but also to serve as an irrigant for the local farmers. It further demonstrates how an integrated approach to project planning and management overcomes problems and produces beneficial results.

Length: 33 pages

Title: The People's Republic of China: Energy for Rural Development — The Yaocun Project
Author: John N. Hawkins and Shengyun Li
Published in: *Small Hydroelectric Projects for Rural Development*, Louis Goodman, John N. Hawkins, and Ralph Love, eds. (New York: Pergamon Press, 1981)

This case history describes a small-scale hydroelectric project in rural north China. The project site was in the county of Linxian, located in the north-

ernmost point of Henan Province. This is an area consisting of an extensive canal system from which numerous small-scale hydroelectric stations operate. The 80 or more small hydroelectric stations in the count were designed and constructed in integrated clusters. This case focuses on one such cluster of two stations, constructed during the period 1973–1977 and known as the Yaocun project. A number of problems in the management of such projects were documented: the political-economic environment; planning and management in a state socialist system; rural farmer participation; the multiple uses of water control projects; and the process of establishing a nonformal technical training program. The case is a good example of the variety of problems that emerge in project management when lines of authority are not clear and governmental decisions and messages are inconsistent.

Length: 40 pages

Title: The Trans Alaska Pipeline
Authors: George Geistauts and Vern Hauck
Published by: The East-West Center, Resource Systems Institute,
Louis Goodman and Ralph Love, eds. (Honolulu,
1979)

This case history describes the conception, planning, design, and construction of the Trans-Alaska Pipeline System (TAPS). The system ultimately selected was an 800-mile pipeline from the Arctic coast to the ice-free port of Valdez. The case examines the construction of the pipeline, haul road, marine terminal in Valdez and the pump stations. The massiveness of the project was further complicated by (1) the environment, (2) the Alaska construction cycle, and (3) state government-federal government relationships.

The project was initially delayed four years (1969–1973) because of environmental opposition, legal actions and Congressional action. This delay increased the estimated cost from \$900 million to \$4 billion. The consortium of oil companies and their design-construct group (Alyeska) did not take advantage of this delay to conduct adequate feasibility studies. This resulted in confusing lines of management authority, with serious disputes among the owners, Alyeska, the execution contractors, and the construction managers. The end results of inadequate planning and management were insufficient labor camp facilities, lack of quality control for the various tasks in implementation, and exposure of deficient designs which required additional delays. The project was completed in 1977, costing over \$8 billion. An independent study showed over \$1.5 billion were lost to waste, fraud, and mismanagement.

The analysis of TAPS also included the impact of the pipeline on Alaska's communities, businesses, state government and environment. A bibliography is included for use in both the classroom and practice.

Length: 130 pages